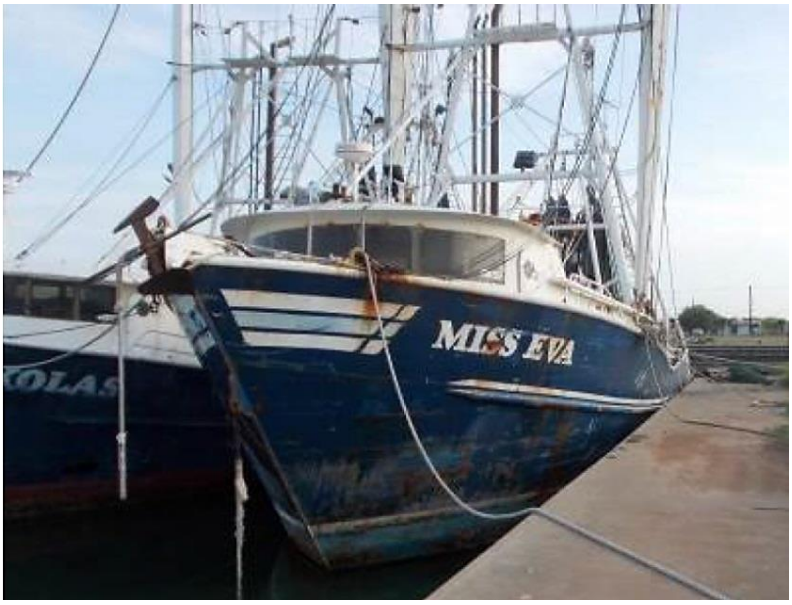
National Transportation Safety Board

Marine Accident Brief

Engine Room Fire on Board Commercial Fishing Vessel *Miss Eva*, with Subsequent Sinking

Accident no.	DCA15LM005
Vessel name	*Miss Eva*
Accident type	Fire and sinking
Location	Gulf of Mexico, Ship Shoal Block 154, about 35 miles southwest of Grand Isle, Louisiana, 28°40.8' N, 91°12.2' W
Date	December 1, 2014
Time	0708 central standard time (coordinated universal time – 6 hours)
Injuries	Three crewmembers received severe burns, and one crewmember was uninjured
Property damage	Total loss of vessel, estimated at $550,000
Environmental damage	No sheen was reported from the estimated 3,200 gallons of marine diesel fuel and 100 gallons of hydraulic oil on board
Weather	Clear skies, visibility 6.5 miles,* winds from the east-southeast at 10 knots, seas 1 to 2 feet
Waterway information	Gulf of Mexico, open water

About 0708 local time on December 1, 2014, a fire broke out in the engine room of the commercial fishing vessel *Miss Eva*. The master and three crewmembers abandoned ship and were rescued by the offshore supply vessel *Dustin Danos*. Two US Coast Guard helicopters transported the crewmembers ashore for medical treatment. The vessel and the 35,000 pounds of shrimp it was transporting were considered a total loss. At the time of the accident, the *Miss Eva* had an estimated 3,200 gallons of marine diesel fuel and 100 gallons of hydraulic oil on board. No sheen was reported.



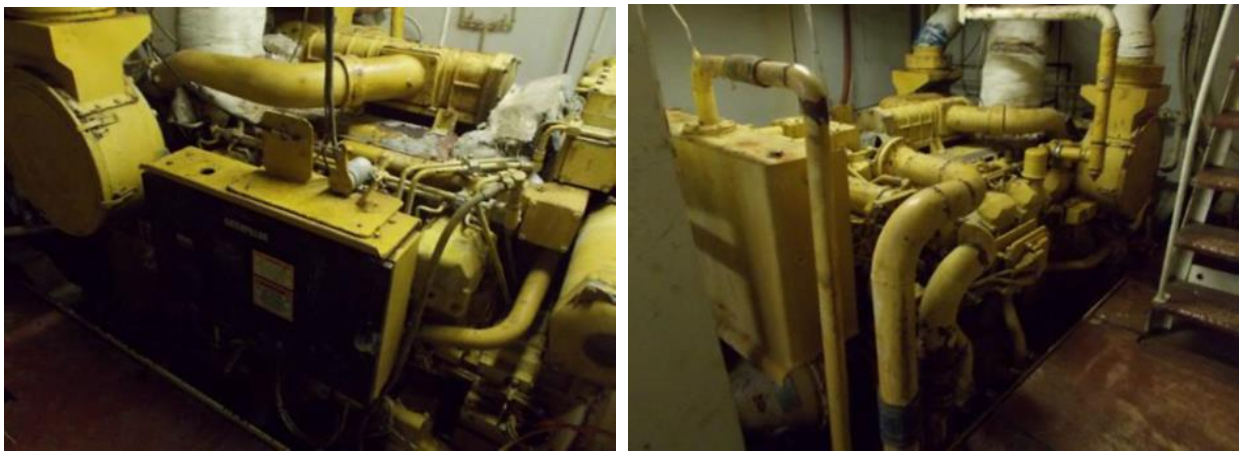
The Miss *Eva* during a condition and valuation survey in July 2014. The *Miss Eva*'s sister vessel, the *Nikolas*, appears in the background. (Photo by K.W. Diers)

* Unless otherwise noted, all miles in this report are nautical miles (1.15 statute miles).

Engine Room Fire on Board Commercial Fishing Vessel *Miss Eva*, with Subsequent Sinking

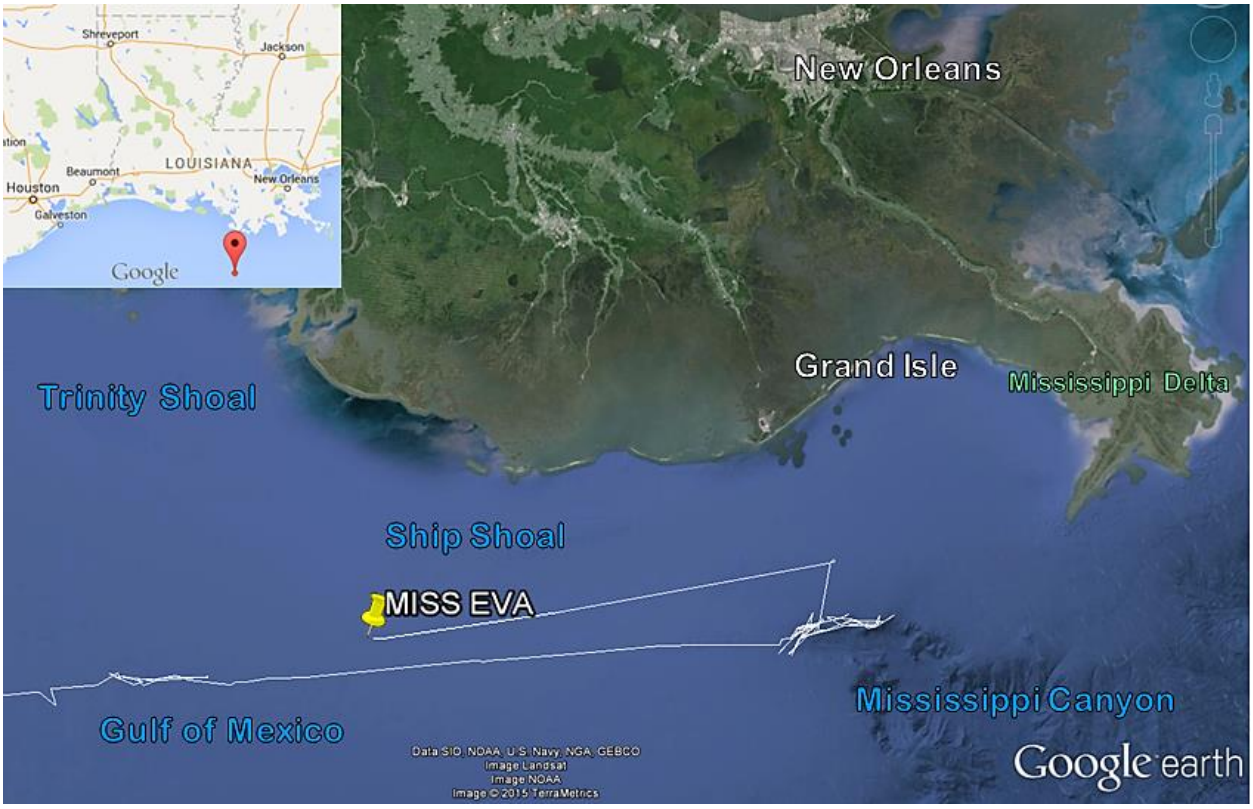
The *Miss Eva* was an uninspected commercial fishing vessel (shrimp trawler) of steel construction that was built by B & B Boat Builders, Inc. in 2001. The vessel was registered in Houston, Texas, and had been family owned and operated until August 2005, when Porto Castelo, Inc. became the owner of the vessel. The operator, Trident Circle, Inc., had been responsible for crewing and maintaining the vessel since June 2014. The vessel was typically operated with a crew of four: one master and three deckhands (designated as a senior deckhand, a deckhand, and a junior deckhand in this report).

The *Miss Eva* was outfitted with one Caterpillar model 3508B marine four-stroke cycle diesel engine. The engine room had natural ventilation through scuttles and ventilation openings and was equipped with a mechanical blower. An alarm panel in the engine room provided aural and visual annunciations for main engine oil pressure, main engine water level, main engine water temperature, and generator water levels. A secondary alarm panel, which was located in the wheelhouse, also provided the same aural and visual annunciations. The *Miss Eva* was not fitted with a fixed fire extinguishing system. The owner and operator stated that smoke detectors were installed in the galley and the centerline passageway leading to the aft exit. The vessel was equipped with seven Coast Guard-approved portable fire extinguishers (weighing between 5 and 15 pounds) that were located in the wheelhouse, galley, and engine room.



The *Miss Eva*'s Caterpillar 3508B main propulsion engine. (Photo by K.W. Diers)

On December 1, 2014, about 0400, the crew of the *Miss Eva* completed fishing operations in the Gulf of Mexico that began on November 2. Change of navigational watch occurred about 0630, with the senior deckhand and deckhand relieving the master and junior deckhand. At 0640, the main propulsion engine stalled. The crewmembers conducted engine checks and identified no issues. The senior deckhand added potable water to the cooling systems of the main engine and portside generator. Only the vessel's portside generator was operational; the starboard-side generator was in the process of being replaced. At 0648, the engines were restarted, and the vessel was under way on a heading of 315 degrees and at a speed of about 13 knots. The senior deckhand sent a text message to the owner and operator stating that 350 boxes of shrimp (weighing 100 pounds each) were on board the vessel, which was to arrive at its homeport of Port of Palacios, Texas, on December 6.



The *Miss Eva* trackline (white line) from November 12 to December 1, 2014, and the vessel's last known position before the fire and sinking (yellow thumb tack). The location of the accident appears in the upper left. (Background by Google Earth)

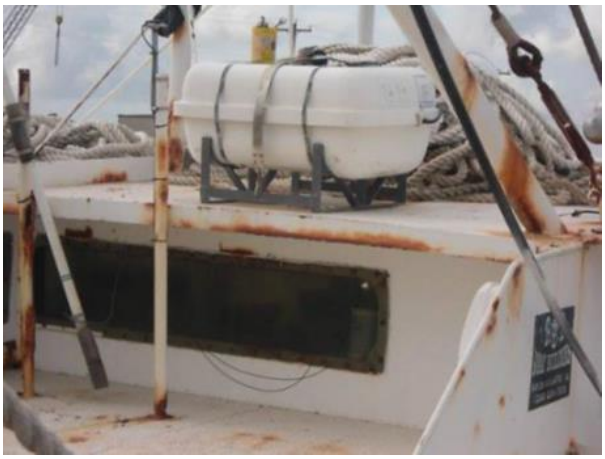
About 0708, the senior deckhand smelled smoke in the wheelhouse, placed the main engine in neutral, and went with the deckhand to investigate the source of the smoke. They stated that there were no visual annunciations or audible alarms in the wheelhouse, cabin, or engine room. In addition, neither the senior deckhand nor the deckhand sounded the general alarm to alert the other crewmembers of the situation. The senior deckhand and the deckhand observed black smoke escaping through the two engine room access doors, one of which led to the cabin and the other of which led to the aft deck. The crewmembers awoke the master, and they proceeded to the aft deck. The master observed that the vessel's lights were not illuminated but could not determine if the portside generator was running. The master also observed flames from the exhaust stack. The senior deckhand stated that he could not access the interior of the vessel due to heavy smoke but knocked on the outside of the cabin to alert the junior deckhand, who was asleep. The junior deckhand woke up, immediately exited the berthing space, jumped over the starboard side of the vessel into the water, and held onto the vessel's fishing rigging and net.

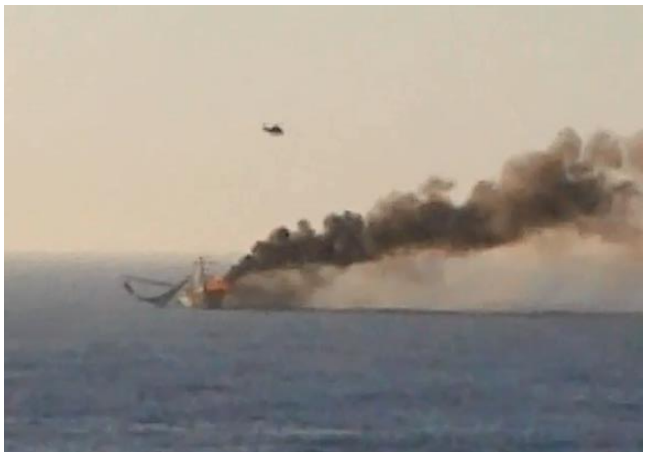
The master and the other two crewmembers went to the aft engine room access door, a piece of plywood with several penetrations in it, to determine the status of the engine. At that time, an explosion occurred with flames exiting through the door. The master and the senior deckhand were overcome by the flames and jumped into the water. The master was severely burned, sustaining second- and third-degree burns to 60 percent of his body, including his upper and lower body and back. The senior deckhand sustained third-degree burns to 9 percent of his body, including his face and upper extremities, right hand, and back. The deckhand placed the

ladder from the cargo hold on the side of the vessel so that the master and the senior deckhand could return on board.

While the deckhand was in the process of manually releasing the six-person liferaft located above the wheelhouse, a second explosion occurred that blew out the wheelhouse windows. The deckhand tossed the liferaft canister over the starboard side and inflated the raft. Flames and smoke exited the location where the wheelhouse windows had been, so the deckhand jumped into the water from the roof of the wheelhouse. He received burns to 6 percent of his body, including his upper extremities and back. The deckhand then righted the liferaft and entered it followed by the junior deckhand, who had been clinging to the fishing rigging. Afterward, the senior deckhand and then the master jumped into the water and entered the liferaft. None of the crewmembers retrieved lifejackets or the vessel's emergency position indicating radio beacon (EPIRB) before entering the liferaft.

While on his morning rounds, a crewmember on board the Century Exploration platform Ship Shoal 154-E observed the *Miss Eva* on fire. The platform crew notified the Coast Guard and coordinated rescue and first aid with the W&T Offshore Ship Shoal rig 149 and an air medic from the Hercules Offshore rig 214. A helicopter from Era Helicopters arrived on scene about 0732 and circled the liferaft and vessel while maintaining communication with Ship Shoal 154-E and the offshore supply vessel *Dustin Danos* (located at Ship Shoal rig 149), which retrieved the *Miss Eva*'s crew from the liferaft and transported them to Ship Shoal 154-E, where first aid was administered to the crewmembers.

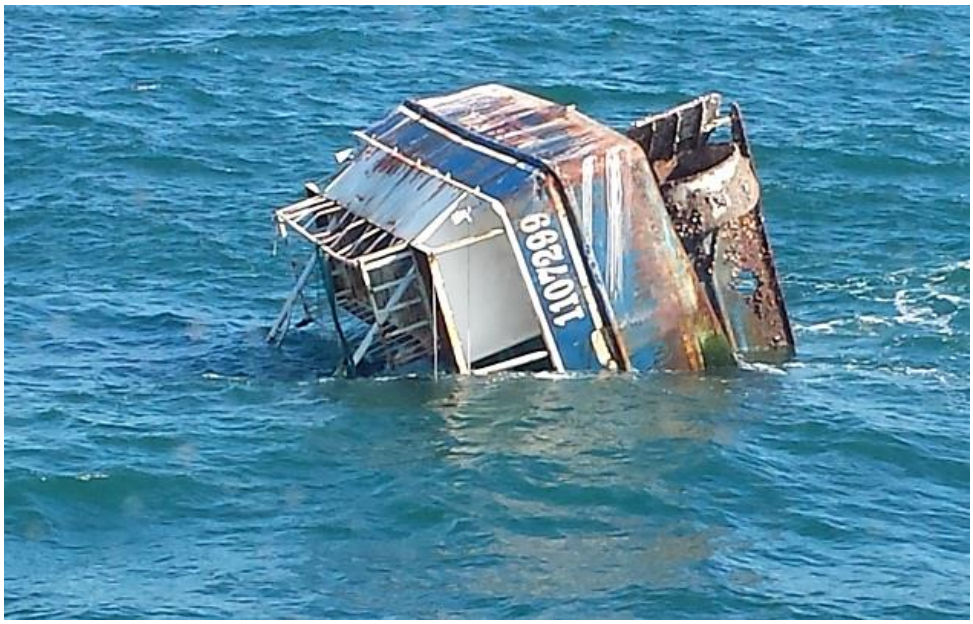




The left photo shows the *Miss Eva*'s liferaft located above the wheelhouse. (Photo by K.W. Diers) The right photo shows the *Miss Eva* on fire with an Era helicopter circling the liferaft and the vessel. (Image from video by Chad Guidroz)

At 0920, a Coast Guard HH65 (6581) Dolphin helicopter arrived at Ship Shoal 154-E and medically evacuated the master, who was the most critically injured crewmember. He was transported to the burn unit at Baton Rouge General Medical Center, Baton Rouge, Louisiana. A second Coast Guard HH65 Dolphin helicopter (6538) arrived about 1000 and medically evacuated the remaining crewmembers. The senior deckhand and the deckhand were also transported to the burn unit at Baton Rouge General Medical Center, and the junior deckhand was transported to West Jefferson Medical Center, Marrero, Louisiana, for medical evaluation.

The *Miss Eva* remained afloat and burning. A sister vessel, the commercial fishing vessel *Nikolas*, arrived on scene to attempt to salvage the *Miss Eva*'s cargo. The *Nikolas*' master noticed that the *Miss Eva*'s bulwarks and hull plating were pushed outward, which he believed were signs of an explosion. About 4 to 6 hours after the fire started, the *Miss Eva* sank bow first in water about 60 feet deep near Ship Shoal Block 154. The *Miss Eva* was not salvaged.



The *Miss Eva* sinking bow first. (Photo provided by master of sister vessel the *Nikolas*)

Because of the sinking, investigators could not conduct a postaccident survey or an inspection of the engine or engine room, where the fire was reported to have started. As a result, the National Transportation Safety Board (NTSB) reviewed events involving the engine before the accident to determine whether they might have any relevance to the circumstances of the accident.

On September 4, 2014, the crew of the *Miss Eva* made a distress call to the Coast Guard while at sea because of an inability to generate electric power and propulsion. Personnel from the Coast Guard cutter *Sturgeon*, an 87-foot-long patrol boat homeported in Grand Isle, Louisiana, responded to the distress call the same day and conducted a safety boarding to determine whether the vessel would be able to remain at sea. At that time, the *Miss Eva*'s crew indicated an issue with dirty fuel. While Coast Guard personnel were on board the *Miss Eva*, the crew was able to restart a generator. The crew was also able to restore propulsion at some point after the safety boarding.

The *Miss Eva* arrived at Port Fourchon, Louisiana, on October 1. The master expressed concern about abnormal main propulsion engine noise and lower-than-normal revolutions per minute while under way at full-ahead speed. Trident Circle, Inc. hired a local mechanic to troubleshoot the issue. The mechanic attached his laptop to the engine's electronic control module, which records information gathered by sensors that are located throughout the engine and transmission to monitor aspects of an engine's operation. The mechanic found an engine air cleaner differential pressure error code. He replaced the air filter, cleared the code, and recommended a rebuild of the engine but did not provide a service or diagnostic report.

Trident Circle stated that the mechanic also adjusted the fuel pressure regulator to maximize engine output.

Trident Circle hired a second mechanic to assess the *Miss Eva*'s engine. The mechanic found that the exhaust valve on the no. 6 cylinder of the engine was damaged and that material from the valve had also damaged the fuel injector, piston, connecting rod, camshaft, and portside turbocharger. On October 3, Trident Circle obtained parts from the mechanic's employer, Force Power Systems, a Caterpillar parts and service provider in Houma, Louisiana. The mechanic and his helper performed the repair and engine tests on October 4. They performed this work outside of their normal work hours and outside of their employer's client network.

After the repairs were completed, the *Miss Eva* departed Port Fourchon for another trip. A few days later, the second mechanic received a call from the vessel's operator stating that, while the *Miss Eva* was under way, its main engine high jacket water temperature alarm had activated. The *Miss Eva* returned to port, and, on October 9, the mechanic found that five of the eight head gaskets were leaking due to overheating. The mechanic stated that the engine was "making air," a term used to describe when combustion exhaust is leaking into the cooling system and/or coolant is being pulled into the cylinder on the intake stroke.

The operator instructed the mechanic to reseal seven of the eight cylinder head gaskets (the no. 6 cylinder head gasket was replaced during the October 4 repair). The mechanic and his helper resealed the seven cylinder head gaskets and refilled the jacket water system with potable water instead of a diesel engine antifreeze/coolant mixture. According to the mechanic, as with the previous repair on October 4, no such mixture was available on board the vessel when the mechanic refilled the jacket water system. Additionally, the mechanic replaced all of the fuel lines due to corrosion. The mechanic told investigators that he advised the owner and the operator to have the vessel return to port for the engine manufacturer's recommended 250-hour check, during which the exhaust valves on the engine cylinders could be readjusted and the fuel injectors could be reset. The owner and the operator stated that they were not made aware of the recommendation.

The mechanic provided investigators with generic invoice sheets for costs associated with repairs, including the hours worked and the travel to and from the vessel. The owner and the operator did not have service reports for the work performed.

On October 11, the *Miss Eva* departed Port Fourchon to continue fishing operations. The vessel returned to its homeport in Texas about 4 days later to offload the catch. On November 2, the *Miss Eva* departed for the trip during which the accident occurred. While under way, the vessel's main engine began to experience higher-than-normal fuel consumption. On November 20, the operator contacted, via text message, the mechanic who had most recently performed repairs to the *Miss Eva*. The operator relayed information from the master indicating that the main engine was consuming 35 gallons of diesel fuel per hour, a 15-gallon increase from the normal consumption rate. Before this time, the vessel's engine had accumulated more than 250 hours since its latest repair, but the recommended check for that interval had not been performed.

The operator and the mechanic exchanged several text messages to try to determine the cause of the increased fuel consumption. The mechanic mentioned that the additional fuel

consumption could be related to the dragging of the fishing nets in deeper water or the vessel being loaded with cargo. He recommended that the operator advise the crew to check the engine oil level and, if the level had risen, to change the oil and return to port. The mechanic stated that an increase in the engine oil level would indicate fuel or jacket water in the lube oil sump. The crew then changed the oil but continued fishing operations rather than return to port. The operator relayed to the mechanic that the crew reported no fault codes or main engine alarms. No further communication occurred between the operator and the mechanic.

The vessel's commercial fishing vessel safety dockside examination decal expired on March 14, 2003. Commercial fishing vessel safety examinations primarily assess the lifesaving equipment on board the vessel and do not include hull or other machinery assessments that are required for Coast Guard-inspected vessels. At the time of the accident, the examinations were voluntary and would only have been conducted at the request of a commercial fishing vessel owner/operator. As of October 15, 2015, such examinations were required for vessels operating more than 3 miles offshore.

On the basis of the available information from the owner, operator, crewmembers, and mechanics, and without an examination of the engine room space, investigators were unable to determine the source of the fire in the engine room. Although the *Miss Eva*'s engine history before the accident did not reveal a potential cause for the fire, the information did show that the master, the owner, and the operator took no action to resolve the engine's increased fuel consumption, which was a precursor to degraded engine performance. Even though the main engine alarm system did not annunciate a condition or failure resulting from the increased fuel consumption, both the owner and the operator should have instructed the crew to return the vessel to port to be evaluated.

Fire and abandon ship drills were required by Title 46 *Code of Federal Regulations* (*CFR*) 28.270, but the owner, operator, and crewmembers of the *Miss Eva* were not aware of these commercial fishing vessel regulations and, as a result, did not conduct such drills, which would have included instructions for donning lifejackets and taking the EPIRB onto the liferaft when evacuating the vessel. Further, a general alarm to alert all crewmembers of an emergency, as required by 46 *CFR* 28.240 and 28.270, was not sounded by the crewmembers on watch or the master.

The owner and the operator were not able to provide documentation that the vessel's main engine and generators were properly maintained in accordance with the manufacturers' maintenance schedule. The starboard-side generator was not operational because it needed repairs, leaving the portside generator as the only source of electric power during the trip. The main engine manufacturer's recommended check at 250 hours was not performed, and the main engine had accumulated more than 400 hours since the time of its last engine overhaul.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the accident involving the commercial fishing vessel *Miss Eva* was an engine room fire that began from an undetermined source followed by downflooding and the eventual sinking of the vessel.

Safety Issue

The *Miss Eva* accident is one of several marine accidents involving an engine room fire that the NTSB has investigated. The NTSB found that some of these vessels were not properly maintained by their owners/operators, similar to the findings from the *Miss Eva* investigation. These accidents highlight the need for owners and operators to develop and implement preventive maintenance and inspection programs for their vessels' mechanical and electrical systems, based on the manufacturers' recommended maintenance schedule, to ensure the safe operation of the vessels.

Vessel Particulars

Vessel	*Miss Eva*
Owner/operator	Porto Castelo, Inc./Trident Circle, Inc.
Port of registry	Houston, Texas
Flag	United States
Type	Commercial fishing vessel (shrimp trawler)
Year built	2001
Official number (US)	1107299
IMO number	8969393
Construction	Steel
Length	86.5 ft (26.4 m)
Draft	12.5 ft (3.8 m)
Beam/width	25 ft (7.6 m)
Gross and/or ITC tonnage	169 gross tons
Engine power; manufacturer	Single 850-hp (634 kW) Caterpillar model 3508B, driving one propeller; Twin Disc model MG-5205 DC 6 to 1: hydraulic reduction gear
Persons on board	Four

For more details about this accident, visit www.ntsb.gov and search for NTSB accident ID DCA15LM005.

Adopted: January 14, 2016

NTSB investigators worked closely with our counterparts from Coast Guard Marine Safety Unit Morgan City, Louisiana, throughout this investigation.

The NTSB has authority to investigate and establish the probable cause of any major marine casualty or any marine casualty involving both public and nonpublic vessels under Title 49 *United States Code* 1131. This report is based on factual information either gathered by NTSB investigators or provided by the Coast Guard from its informal investigation of the accident.

The NTSB does not assign fault or blame for a marine casualty; rather, as specified by NTSB regulation, "[NTSB] investigations are fact-finding proceedings with no formal issues and no adverse parties . . . and are not conducted for the purpose of determining the rights or liabilities of any person." Title 49 *Code of Federal Regulations*, Section 831.4.

Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by conducting investigations and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report. Title 49 *United States Code*, Section 1154(b).